

DCIN-II

High-Performance Chemical Injection Nipple

APPLICATIONS

- Chemical injection in high-pressure, high-temperature, and corrosive environments

BENEFITS AND FEATURES

- Cost-effectiveness
- Increased reliability
- Increased ordering flexibility
- Capability to test tubing without breaking rupture disk
- Capability to test check valves while testing tubing
- Protection from debris for check valves when used with safety screen filter sub
- Protection of ancillary lines and cables
- Dual check valves
- Availability in wide range of tubing sizes
- Pressure rating up to 15,000 psi
- External slots (bypass grooves)
- Safety screen sub (optional)

The DCIN-II dual-check chemical injection nipple offers increased tolerance to debris, if used with the safety screen filter sub; also, it offers enhanced performance, and improved reliability in low-pressure applications, an increased service temperature rating, and flexible testing options in a cost-effective package.

This eccentrically machined, tubing-conveyed chemical injection system consists of a ported nipple that houses two corrosion-resistant check valves and a hydraulic fitting to connect to an injection line from surface. It is used to inject chemicals for corrosion prevention and/or to inhibit formation of gas hydrates, scale, asphaltenes, or paraffin in critical equipment in the tubing string.

The system is available in various tubing sizes and thread weights. In addition, the DCIN-II can be attached to ¼-, ⅜-, or ½-in injection lines using the state-of-the-art externally testable Schlumberger hydraulic dry-mate connector (HDMC).

DCIN-II check valves are independently qualified, and each valve is capable of retaining differential pressures from 500 to 15,000 psi [3,448 to 103,425 kPa] at temperatures from 70 to 350 degF [21 to 177 degC]. Both check valves are manufactured from corrosion-resistant alloys including MP35N® and Elgiloy®. The upper check valve is equipped with a soft seat, and the lower check valve is equipped with a metal-to-metal seat to ensure exceptional system performance in any well conditions.

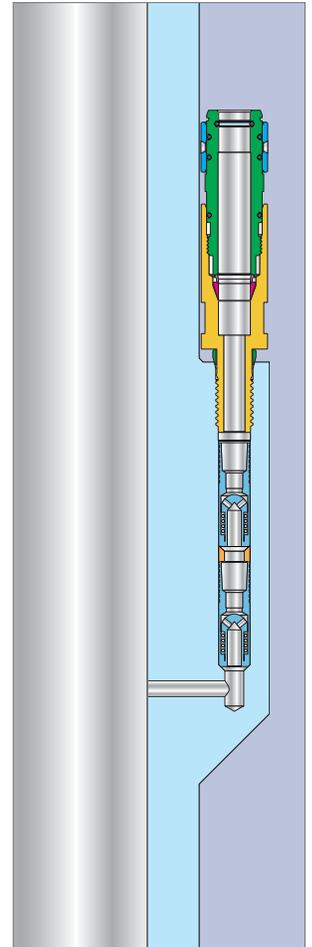
Each check valve has a tapered ID above the valve seat and a series of lands and grooves on the OD opposite the tapered ID section. The valve is slipped into a reamed countersunk check valve port in the mandrel, and a tapered pin is pressed into the tapered ID, causing controlled expansion of the lands and grooves. This expansion allows the lands to form an independent, self-retaining, metal-to-metal seal with the ID of the check valve port. The result is a positive, reliable, leakproof seal for both liquids and gases.

Check valve integrity can be verified at any time by applying internal pressure to the tubing and monitoring this applied pressure in the injection line.

The DCIN-II is also equipped with external bypass slots that are designed to accommodate standard sizes of encapsulated hydraulic and/or electrical lines for intelligent completion applications.

OPERATION

The nipple is made up in the tubing string at the desired chemical injection point, and a stainless steel chemical injection line is attached to the nipple with the HDMC connection. The DCIN-II and injection line are then run to the desired injection depth with the completion.



DCIN-II chemical injection nipple.

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Engineering Data for DCIN-II Chemical Injection Nipple

Size, in [mm]	Thread Weight Range [†] , lbm/ft	Max. OD, in [mm] [‡]	Min. ID, in [mm]	Max. Working Pressure, psi [kPa]
2.875 [73.0]	6.4–8.7	na [§]	2.347 [59.6]	15,000 [103,425]
3.500 [88.9]	9.3–12.95	na	2.867 [71.4]	15,000 [103,425]
4.500 [114.3]	12.75–15.1	na	3.833 [97.4]	15,000 [103,425]
5.500 [139.7]	17.0–23	na	4.767 [121.1]	15,000 [103,425]
7 [177.8]	29	na	6.060 [154]	15,000 [103,425]

[†] Additional thread weights available on request

[‡] OD varies based on on pressure/thread requirement.

[§] not available

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